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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,530	10/23/2001	Kazuhito Horiuchi	P/16-305	4882

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EXAMINER	
MADDEN, GREGORY VINCENT	
ART UNIT	**PAPER NUMBER**
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/045,530	HORIUCHI, KAZUHITO	
	Examiner	Art Unit	
	Gregory V. Madden	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed November 24, 2006 have been fully considered but they are not persuasive.

First, regarding claim 1, the Applicant contends both the Sato (U.S. Pat. 6,839,087) and the Ota (U.S. Pat. 5,194,960) fail to teach or suggest "an analyzing means for analyzing the information acquired by said information acquiring means, including an information synthesizing means for synthesizing the information concerning a dynamic range with said first and second conditions for exposure acquired by said information acquiring means and a histogram arithmetic means for producing a histogram of the information synthesized by said information synthesizing means." Specifically, Applicant states that the Ota reference (mistakenly cited as the "Sato" reference in Applicant's arguments) teaches that "...histograms are produced after the first exposure and then after the second exposure, such that each histogram is based on information from one of the exposures, and is not based on a synthesis of this information. See Sato (read: Ota), Col. 13, line 46 to Col. 14, line 5" (See Remarks, Pg. 10). However, the Examiner respectfully disagrees. Referring to Fig. 5 of the Ota reference, Ota teaches that a first exposure is conducted ("b" condition), and then a second exposure is conducted (either "a" condition or "c" condition). Based on the first and second exposures, a luminance histogram is prepared (step 46) (See also Col. 14, Lines 26-44). As such, the Examiner believes that while the Sato reference does, on its own, fail to teach "an analyzing means for analyzing the information acquired by said information acquiring means, including an information synthesizing means for synthesizing the information concerning a dynamic range with said first and second conditions for exposure acquired by said information acquiring means and a histogram arithmetic means for producing a histogram of the information synthesized by said information synthesizing means", the Ota reference sufficiently teaches that synthesized information

(information from exposures "b" and "a" or "c") is used to produce a histogram (luminance histogram) to set a condition for actual photographing. Thus, the Examiner believes that the combination of Sato in view of Ota would have been obvious to one or ordinary skill in the art, and therefore the previous rejection of claim 1 under 35 U.S.C. 103(a) is maintained. Please refer to the rejection below.

Considering claims 5, 6, 8, and 9, the Applicant argues that based on their dependence from claim 1, the rejection to these claims should be withdrawn in view of the reasons set forth regarding claim 1. However, the rejection to claim 1 is maintained by the Examiner, and thus the rejection to claims 5, 6, 8, and 9 is similarly maintained.

As for remaining dependent claims 4, 7, and 10-21, Applicant again argues that based on their dependence from claim 1, the rejection to these claims should be withdrawn in view of the reasons set forth regarding claim 1. However, the rejection to claim 1 is maintained by the Examiner, and thus the rejection to claims 4, 7, and 10-21 is similarly maintained.

Finally, it is noted with appreciation that the Applicant has amended the title of the invention to be more descriptive. Thus, the previous objection to the specification is hereby withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (U.S. Pat. 6,839,087) in view of Ota (U.S. Pat. 5,194,960).

First, considering **claim 1**, the Sato reference teaches an image pickup apparatus (digital camera) comprising an information acquiring means (photometering sensor 52 and system controller 31) for, prior to actual photographing, acquiring information concerning a dynamic range (i.e. luminance information), which is required to photograph a photographic scene, with a first condition for exposure (first exposure time) and a second condition for exposure different from the first (second exposure time), and an analyzing means (picture signal processing circuit 39) for analyzing the information acquired by the acquiring means (i.e. the information from the pre-exposure period is analyzed). Further, Sato teaches a conditions-for-exposure setting means (system controller 31) for setting the conditions for actual photographing (main exposure at third exposure time) according to the result of the analysis performed by the analyzing means, a photographing means (shutter control circuit 35 and CCD 33) for performing actual photographing under the conditions for actual photographing (third exposure setting) set by the conditions-for-photographing setting means, and an image information converting means (image processing operations at Step 115 in Fig. 3) for converting an image produced during the actual photographing according to the result of analysis performed by the analyzing means (Please refer to Figs. 1-3, and Col. 4, Line 52 – Col. 6, Line 52). What Sato does not specifically disclose is that the analyzing means includes an information synthesizing means for synthesizing the information concerning a dynamic range with the first and second conditions for exposure acquired and a histogram arithmetic means for producing a histogram of the information synthesized by the information synthesizing means. However, the Ota reference does teach a camera wherein two exposures of a scene are taken (exposure conditions 'b' and 'a' or 'c'), information from the two exposures is synthesized, and a histogram of the calculated values is generated (by evaluation value calculating means 22). Please refer to Figs. 3-5, and Col. 13, Line 28 – Col. 14, Line 55. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the information synthesizing means and histogram generating means of Ota with the analyzing means of Sato. One would have been motivated to do so because by

synthesizing the information of the two pre-exposure values and creating a histogram based on these values, a proper main exposure can be determined based on the peak luminance levels in the histogram, and thus an ideal actual photograph with a wide dynamic range can be realized with little (if any) manual correction performed by the user.

In regard to **claim 5**, the limitations of claim 1 are taught above, and the Sato reference further shows that the information concerning a dynamic range acquired by the information acquiring means (photometering sensor 52 and system controller 31) is luminance information concerning a photographic scene. Note that exposure times are set based on the luminance values obtained during photometering (step 101 in Fig. 2). See also Col. 5, Lines 27-35.

As for **claim 6**, again the limitations of claim 1 are taught above by Sato in view of Ota, and the Sato reference further discloses that the conditions for actual photographing (third, or main, exposure time setting) is information needed to drive the shutter (via shutter control circuit 35). See Figs. 2 and 3 and col. 6, Lines 32-40.

Regarding **claim 8**, Sato in view of Ota teaches the limitations of claim 1 above, and the Sato reference teaches that the conditions for actual photographing (i.e. main exposure setting) set by the conditions-for-photographing setting means are information concerning a plurality of exposure levels that signifies different exposures. Note that different exposure compensation factors are calculated based on the values of the first and second pre-exposures, and thus the third (or main) exposure can be a plurality of exposures. Please refer to Col. 6, Lines 23-52.

Considering **claim 9**, again the limitations of claim 1 are taught above, and the Sato reference again teaches in Col. 6, Lines 23-52 that the photographing means performs actual photographing during with exposure is performed a plurality of times under the conditions for actual photographing (main exposure setting) with a condition for exposure varied.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (U.S. Pat. 6,839,087) in view of Ota (U.S. Pat. 5,194,960) further in view of Wang (U.S. Pat. 6,850,642).

Regarding **claim 4**, Sato in view of Ota teaches the limitations of claim 1 above, but the combination does not show a gray scale arithmetic means that produces a gray scale conversion curve using the histogram which represents the distribution of frequencies that are equal to or larger than a predetermined value among the values of frequencies contained in the histogram. The Wang reference, however, does show a gray scale arithmetic means that produces a gray scale conversion curve according to the claim in Col. 2, Lines 19-44, and Figs. 2 and 3. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the histogram arithmetic means of Sato in view of Ota with the gray scale arithmetic means of Wang. One would have been motivated to do so because by using only the gray scale conversion curve, which linearly maps the peaks of the histogram, possible noise reflected on the original histogram may be filtered out and the relative brightness of the image is preserved, as Wang states in Col. 2, Lines 16-17.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (U.S. Pat. 6,839,087) in view of Ota (U.S. Pat. 5,194,960) further in view of Alston et al. (U.S. Pat. 4,647,975).

Regarding **claim 7**, Sato in view of Ota teaches the limitations of claim 1, as set forth above, but the combination does not show that the photographing means includes a flashlight emitting means that is controlled based on the conditions for photographing set by the conditions-for-photographing setting means (although Sato does disclose a flash emitting means (at hot shoe 56) in Fig. 1 and Col. 5, Lines 10-16). The Alston reference, however, does show a flashlight emitting means (flash 50) that can be controlled (in this case, by timing control circuit 34) based on the conditions set by the conditions-for-photographing setting means, as is taught in Col. 5, Lines 32-41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the flashlight emitting means of

Alston with the image pickup apparatus of Sato in view of Ota. One would have been motivated to do so because by providing artificial illumination on the image to be captured, both the foreground and background of a scene may be adequately illuminated, and thus adequately exposed, as Alston shows in Col. 9, Lines 24-35.

Claims 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (U.S. Pat. 6,839,087) in view of Ota (U.S. Pat. 5,194,960) further in view of Takahashi et al. (U.S. Pat. 5,929,908).

Next, considering **claim 10**, the limitations of claim 1 are taught above by Sato in view of Ota, but the combinations fails to explicitly teach that the conditions-for-photographing setting means also includes a control means that judges whether a condition for exposure under which the information acquiring means acquiring information is appropriate, and if it is judged inappropriate, the control means changes the condition for exposure and instructs the information acquiring means to acquire information again. However, the Takahashi reference discloses (in Col. 10, Lines 27-40 and Fig. 9) that a conditions-for-photographing setting means (parameter determination unit 10) judges whether or not a condition for exposure acquired by the information acquiring means is appropriate, and if not, instructs the information acquiring means to acquire information again. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the judging of the appropriateness of a condition for exposure, as done by Takahashi, with the conditions-for-photographing setting means of Sato in view of Ota. One would have been motivated to do so because by judging whether an exposure setting is inappropriate (i.e. beyond a certain underexposure or overexposure threshold), an appropriate image at an acceptable exposure level can be taken more quickly and automatically, without the user having to recapture and/or manually adjust the exposure settings for a given scene.

As for **claim 11**, the limitations of claim 10 are set forth above, and the Takahashi reference further discloses that when the condition for exposure is changed after being judged inappropriate, the condition for exposure is changed to make an image darker (as with an overexposed image) or brighter (as with an underexposed image) (See Figs. 8A-D and Col. 10, Lines 44-54).

Considering **claim 12**, again the limitations of claim 1 are taught above by Sato in view of Ota, but Sato in view of Ota fails to specifically disclose that the conditions-for-photographing setting means includes an adjusting means that adjusts the conditions for actual photographing set based on the result of analysis performed by the analyzing means (although Sato does show in Col. 6, Lines 22-52 that the main, or third, exposure is adjusted based on the analysis performed by the analyzing means). However, the Takahashi reference discloses that the conditions-for-photographing setting means (parameter determination unit 10) are adjusted based on the result of analysis performed by the analyzing means (dynamic range expansion deciding unit 9), as is shown in Col. 5, Lines 38-45 and Fig. 1.

In regard to **claim 13**, Sato in view of Ota teaches the limitations of claim 1 above, but the combination does not disclose that the conditions-for-photographing setting means includes an adjusting means that adjusts the ratio of different conditions for exposure which signify a plurality of exposures and which are included in the conditions for actual photographing set based on the result of analysis performed by the analyzing means. However, the Takahashi reference teaches that the conditions-for-photographing means adjusts the ratio of different conditions for exposure based on the result of analysis performed by the analyzing means (See Col. 5, Lines 46-67, Col. 6, Lines 1-28, and Table 1).

Next, considering **claim 14**, the limitations of claim 12 are taught above by Sato in view of Ota further in view of Takahashi, and the Takahashi reference also discloses that the adjusting means adjust conditions for photographing according to the dynamic range required, as is taught in Col. 5, Lines 17-25.

As for **claim 15**, Sato in view of Ota further in view of Takahashi teaches the limitations of claim 13 above, and as is similarly disclosed above with respect to claim 14, the Takahashi reference also

discloses that the adjusting means adjust conditions for photographing according to the dynamic range required in Col. 5, Lines 17-25.

Regarding **claim 16**, the limitations of claim 12 are taught above, and the Takahashi reference teaches that the adjusting means checks the conditions for photographing set based on the result of analysis performed by the analyzing means (dynamic range expansion deciding unit 9), and adjusts the conditions for photographing if necessary (See Col. 5, Lines 17-25).

As for **claim 17**, the limitations of claim 13 are shown above, and the Takahashi reference also teaches that the adjusting means checks the conditions for photographing set based on the result of analysis performed by the analyzing means (dynamic range expansion deciding unit 9), and adjusts the conditions for photographing if necessary (See Col. 5, Lines 17-25).

Regarding **claim 18**, Sato in view of Ota further in view of Takahashi discloses the limitations of claim 16, as discussed above, and Takahashi also shows, in Col. 5, Lines 39-45, that the information checked by the adjusting means is that of an f-number (i.e. value for the iris diaphragm).

In regard to **claim 19**, again, Sato in view of Ota further in view of Takahashi discloses the limitations of claim 17, as discussed above, and Takahashi also shows, in Col. 5, Lines 39-45, that the information checked by the adjusting means is that of an f-number (i.e. value for the iris diaphragm).

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (U.S. Pat. 6,839,087) in view of Ota (U.S. Pat. 5,194,960) further in view of Takahashi et al. (U.S. Pat. 5,929,908) and still further in view of Alston et al. (U.S. Pat. 4,647,975).

Next, considering **claim 20**, the limitations of claim 12 are taught above, and as is similarly disclosed in claim 7 above, neither the Sato nor the Ota reference teaches a flashlight emitting means that irradiates light to a photographic scene, and the adjusting means adjusts the conditions for actual photographing based on the use situation of the flashlight emitting means. The Takahashi reference also

fails to teach this limitation. However, the Alston reference does disclose a flashlight emitting means (flash 50) that irradiates light to a photographic scene and adjusts the conditions for actual photographing according to the use situation of the flashlight emitting means, as is taught in Col. 5, Lines 32-41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the flashlight emitting means of Alston with the image pickup apparatus of Sato in view of Ota further in view of Takahashi. One would have been motivated to do so because by providing artificial illumination on the image to be captured, both the foreground and background of a scene may be adequately illuminated, and thus adequately exposed, as Alston shows in Col. 9, Lines 24-35.

Finally, regarding **claim 21**, the limitations of the claim are identical to those of claim 20 above (albeit dependent upon claim 13), and thus the claim is rejected on the same grounds as that of claim 20.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory V. Madden whose telephone number is 571-272-8128. The examiner can normally be reached on Mon.-Fri. 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Madden
January 19, 2007

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER